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ABSTRACT

Three important human capital questions must be addressed by U.S. policy makers: What are the effects of employer-sponsored training? Do employers invest enough in employee training? and How will accelerating technological change affect the need for employer-sponsored training and for complementary investments in education? Four policy implications of research on labor market dynamics are as follows: (1) there is no clear empirical evidence to support either increases or reduction in incentives for employer-sponsored training, but if policy makers do decide to provide further incentives, they should examine incentives to employees as well as to employers; (2) public programs, especially public schools, must prepare a much larger share of new entrants for well-paid, higher-skilled jobs; (3) remedial education or further training may deal with the problem of high unemployment rates more effectively than creating new jobs; and (4) data should be collected systematically to allow for an analysis of the level and effectiveness of all types of human capital investments. The educational system must sharply reduce the proportion of graduates with poor qualifications. Coordination will be required among employers and educational institutions. Federal and state economic policies must address the basic problem which is that those workers with problems in finding new employment need to extend their education or training. (NLA)

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EDUCATION, TRAINING, AND LABOR MARKETS: A POLICY PERSPECTIVE

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For fifty years, since the beginning of the Great Depression, the primary concern of economic policy has been jobs. For much of that time, the emphasis has been on finding enough jobs for people. Today, the U.S. faces a shortage of skilled workers. This shortage has directed policymakers to the need to improve education and training. This paper reviews recent research in the dynamics of labor markets reported in six papers by Jacob Mincer and suggests the implications for education and training policy in the U.S., with a particular focus on the role of employer-sponsored training.

American policymakers are wrestling with three important human capital questions:

- What are the effects of employer-sponsored training?
- Do employers invest enough in employee training?
- How will the accelerating pace of technological change affect the need for employer-sponsored training and for complementary investments in education?

Why Are These Questions Important?

Throughout the 1980s, economic policy debates focused on investing in human capital, both as a way to encourage overall economic growth and as a way to expand opportunities for the economically disadvantaged. Human capital investments today exceed net annual investments in plant and equipment. Despite these large investments, serious problems persist. Tests measuring what school children know record lower scores today than two decades ago, and employers complain that they cannot find qualified employees. These problems seem to be linked to loss of competitiveness in international markets, mounting trade deficits, slow productivity growth, and persistent poverty in inner cities and rural areas.

As a result, many people believe that the United States invests too little in educating and training its people. Because employer investments in employee training are about one-third of the total national investments in human capital, employer investments may be a large part of the problem and a large part of any strategy to improve the skills of the workforce.

Public policies, from tax codes to direct training programs, influence the level and the effects of employer-sponsored training. Policymakers need to know whether these policies are reducing or enhancing employer investments and whether, and in what way, these policies should be changed.

This Brief is a distillation of a paper by Roger Vaughan entitled, *Education, Training, and Labor Markets: Summary and Policy Implications of Recent Research by Jacob Mincer*. Both the longer paper and this Brief are based on recent seminal research by Jacob Mincer conducted for the National Center on Education and Employment. The implications of the research for public policy were drawn by Roger Vaughan. For the list of references to Mincer's work and related research, see the original paper, which is available from the Institute on Education and the Economy for $7.50.

Policymakers are concerned that employers are serving only a small part of the workforce and are neglecting or overlooking certain types of employees. In the past, government programs have offered special training for low-income people, displaced workers, and others in order to place them in private jobs.

State and local agencies finance and manage a large number of education and training programs, including programs used by local employers. The capacity and structure of these programs cannot change quickly. State and local actions depend upon perceptions of skills problems, the success of existing programs, and local fiscal conditions. Anticipating how skill demands will change, therefore, may give public administrators some lead time in adapting the system to meet them.

In addition, successful human capital investments depend upon coordination among employers and educational institutions. Understanding the changing demands for human capital can make these links more effective.

What Are the Effects of Employer-Sponsored Training?

All studies find that wages increase sharply during the training period and then moderately afterward. The wages of people being trained by their employers grow 4 to 6 percent faster (annually) than wages of employees who are not being trained, and about 1 percent faster afterward. Even if trained workers change jobs, their wage trajectories are above those of untrained workers, indicating that they have received general marketable skills as well as skills specific to a particular employer.

But changing jobs is much less important than training in explaining growth in wages. Employer training

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accounts for an estimated two-thirds of the earnings gained over a working career; job changes account for only one-sixth. The *relative* importance of training to moving is lower for younger workers but increases with age. Workers who move twice as frequently as the average experience a 40 percent increase in income over a 15 year period; workers who move the average number of times—2.25—experience a 46 percent increase.

Job training greatly reduces the probability of experiencing unemployment and, to a lesser extent, its average duration, even allowing for the higher levels of education of trained employees. When trained workers are laid off, they are unemployed for a shorter time than those with less human capital, since they are better at searching for alternatives and are more intensively sought by employers with vacancies. For trained workers, more than half of all job changes occur without unemployment.

Economists have warned that employers would be deterred from investing in their employees if those employees are likely to change jobs, carrying their new skills with them. Although they can move to the employer making the best offer, trained employees are, in fact, less likely to move than those who have received less training. This effect is stronger for older than for younger workers. Also, regardless of their initial mobility, employees trained by one employer are more likely to be trained by subsequent employers and to enjoy longer tenure in those subsequent jobs.

However, employers do not train everyone. Those who failed to acquire basic skills in school are much less likely to receive training from their employers than those with better qualifications. Career investments in human capital build upon education acquired by workers prior to entering the labor market. The more educated they are and the better their job match, the more training employees receive from their employers.

Employees with poor basic skills suffer a large and enduring handicap. Not only do they receive less training, but also, since their search skills are less developed, unskilled workers take much longer to find another job.

Women are much less likely than men to be trained by their employers, even allowing for differences in their prior educational attainments. For all employees, training declines as their seniority advances.

Who gets trained and the productivity of that training depend heavily on the attainments of those employees before they enter the workforce. But the basic skills acquired during primary and secondary education have not kept up with employers' needs. Unless this trend is reversed, employers, already facing a shortage of qualified employees, will be unable to overcome the shortage through their own investments except at vastly increased cost.

Do Employers Invest Enough in Training Their Employees?

Estimates of the costs of and the wage gains from employer-sponsored training are not sufficiently precise to determine whether employers underinvest or overinvest in training their employees. Though the range of estimates is wide, training investments appear to be profitable.

Employers already invest heavily in training their employees. Employer-sponsored training may account for about one-third of the nation's total investments in human capital—including both expenditures and foregone income. Most employees receive some form of training from their employers when they begin a job, and most receive further training as they move up career ladders. In 1976, three-quarters of employees under the age of 25 reported being in job training for an average of over 12 hours a week (3.2 hours in separate training and 9.5 hours of training while engaged in production). The total cost of employer-sponsored training in 1985 was estimated to range from $175 billion to $210 billion. These estimates compare with $157 billion in direct expenditures on primary and secondary education, $65 billion on higher education, and $23 billion by government in 1985.

The question is whether these employer investments are adequate. The best way to assess the adequacy of employer investments would be to compare the rate of return on training investments with the rates on other types of investment. If the rate of return on training is above the rate that can be earned on other assets, then employers may be underinvesting, because resources could profitably be shifted from other types of investments to training employees.

But the returns on employer investments in training are difficult to measure. Data on the costs incurred by employers and employees are not precise, estimates of the gains in productivity from training employees vary widely, and some of the benefits of training may not be reflected in observed labor market behavior. Many benefits may not be realized until many years after the training and may not be "priced" in labor market transactions. For example, what value can be placed on a more stable workforce? Further, how can we quantify the risks to employers that trainees do not perform as intended, or the risks to employees

that jobs are not as attractive as hoped?

Even if costs and benefits could be determined accurately, and a rate of return computed, interpreting the results would by no means be unambiguous. Do the higher earnings of trained employees reflect their prior education, the training they have received on the job, or their innate ability (of which their educational achievement was merely a sign)?

How Will the Pace of Technological Change Affect the Need for Employer Training?

As employers adapt to new technologies, they demand employees with broader skills and greater educational attainments—and pay them higher wages.

Industries in which productivity is growing fast, in which the capital stock is newer, and in which research and development expenditures as a percent of sales are relatively high, hire better-educated workers.

Better-educated new entrants are more likely to choose jobs in high productivity growth industries, and better-educated workers are attracted from other sectors and even from other firms in the same sector by higher wages. And, after a lag, companies begin to invest heavily in training. As a result, wage trajectories steepen. In the short run, the onset of high productivity growth in a sector increases outside training relative to on-the-job training. In the long run, it leads to greater in-house training and less outside training.

Although investments in on-the-job training increase as the rate of technological change increases, those investments become obsolete faster. Employers, therefore, invest less in each episode of training, but retrain employees more frequently and more intensively.

Although new technologies displace people from jobs and change the nature of work, industries where technology is rapidly changing experience below-average rates of unemployment. Workers are more likely to become unemployed and remain unemployed in industries where there is little or no technological change or growth in productivity.

Japanese employers about whom data are available invest much more heavily than U.S. employers in training their employees. This emphasis on training has often been cited as the reason for the rapid growth in Japanese productivity. But a smaller proportion of the new entrants to the Japanese workforce have graduated from postsecondary education compared with the U.S. With on-the-job training as a partial substitute for formal education, Japanese employers invest more heavily in their workers at all levels of education. This is feasible because of the high quality of their elementary and secondary education.

What Are the Policy Implications of These Findings?

1. There is no clear empirical evidence to support either increases or reductions in incentives for employer-sponsored training. Employer-sponsored training already receives extensive benefits under both federal and state tax codes. Most costs, for example, can be expensed when they incur, not depreciated over the life of the investment. Expensing subsidizes training by about 33 percent relative to longer-term investments. In addition, fees paid by employers to enroll workers in external education or training institutions are often less than the full cost of the training. If policymakers decide to provide further incentives for employer investments, they should examine incentives to employees as well as employers.

2. The accelerating demand for better-educated workers, and the increased rate of return to education, may create a dual labor market, in which the earnings of the well-educated grow rapidly while the earnings of the less-educated fall. It will become more and more difficult for disadvantaged people to escape from poverty. Public programs, especially public schools, K-12, must prepare a much larger share of the new entrants for well-paid higher-skilled jobs. Employer-provided training and public education are complements, not substitutes.

3. Creating new jobs through public works or public employment programs is not the solution to high unemployment rates among unskilled workers. Remedial education or further training may deal with the problem more effectively. The evidence is that people without basic skills enjoy long-term gains if they receive intensive classroom training but few gains if they are merely placed in jobs. Training on the job will not remedy their deficiencies. Unless learning skills are improved before they are hired, poorly educated people will fall further behind better-qualified fellow workers.

4. In view of the importance of human capital investments to overall economic growth, data should be collected systematically to allow for an analysis of the level and effectiveness of all types of human capital investments. The quality and the quantity of the data should be at least comparable with economic data compiled on investments in plant and equipment. Longitudinal panel data should be collected so that career patterns of training, earnings, and other aspects of labor market behavior can be measured. In addition, employer surveys are needed to assess the determinants

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of training investments by firm size, type of activity, and other industry characteristics.

Conclusion

Without a supply of well-educated employees, employers' ability to benefit from new technologies may be slowed, and the nation's competitiveness may be further diminished. Improving the overall educational attainment of the workforce will be the only way in which employers' growing needs for trainable employees can be met. Adapting unskilled workers to new technology is not a problem that employers can easily solve in the workplace. If they must train their employees in more and more advanced occupational skills, they will be less and less able to provide remedial education or training in the workplace for mediocre high school graduates. The challenge of teaching the foundations of the skills that will enable people to live with new technologies must be met, in large part, in primary and secondary schools.

The education system must not only raise average levels of educational attainment, it must sharply reduce the proportion of high school and postsecondary graduates with poor qualifications. A shrinking share of new jobs is open to poorly qualified people, and the overall rate of growth of the workforce is falling. In an economy increasingly evolving into an educational meritocracy in which most earnings are returns to human capital, our failure to prepare so many people for productive employment is exacting a heavy cost. The situation demands a greater attention to at-risk students.

The continued separation of education and economic development policy will become increasingly costly as the effectiveness of public human capital investments becomes more important. A successful human capital strategy will require coordination among employers and educational institutions. Many federal and state economic policies intended to deal with the problem of worker displacement—financial support for ailing industries, advance notification of closings, relocation assistance, or even attempting to recruit replacement firms—fail to address the basic problem: Those workers with problems in finding new employment need to extend their education or training.

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